CLAIM OR CLAIMS

WHAT IS CLAIMED IS:

1. A reconstruction filter having a seagull architecture comprising:

a first infinite impulse response filter having as an input a signal delayed by one sample time and having as an output a first filter output;

a second infinite impulse response filter having as an input a reverse version of the signal delayed by one sample time and having as an output a second filter output; and

means for combining the first and second filter outputs and the signal to produce a reconstruction filter output.

2. The reconstruction filter as recited in claim 1 wherein each infinite impulse response filter comprises:

a high frequency path coupled to the filter input to produce a high frequency filter output; and

a low frequency path coupled to the filter input to produce a low frequency filter output, the low and high frequency filter outputs together forming the filter output for input to the combining means.

3. The reconstruction filter as recited in claim 2 wherein each frequency path comprises:

a first multiplier having a first input coupled to the filter input and a second input coupled to receive a first filter coefficient, and having an output;

a summer having a first input coupled to the output of the first multiplier and a second input, and having an output;

a delay circuit having an input coupled to the output of the summer, and having a first output coupled to the combining means and a second output; and

a second multiplier having a first input coupled to the second output of the delay circuit and a second input coupled to receive a second filter coefficient, and having an output coupled to the second input of the summer.

4. A method of reconstruction filtering an input signal comprising the steps of:

infinite impulse response filtering the input signal delayed by one sample time to produce a first filter output;

infinite impulse response filtering a reverse version of the input signal delayed by one sample time to produce a second filter output; and

combining the first and second filter outputs and the input signal to produce a reconstruction filter output in response to the input signal.

5. A method of designing a filter for a sin(x)/x function comprising the steps of:

approximating a 1/x function as a sum of decaying exponentials; and

for each decaying exponential determining coefficients for a corresponding IIR filter so that the sum of the outputs of the IIR filters approximates the 1/x function.